Cities, Land and Spatial Inequality

Joana Barros

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Competitiveness within a Safe Operating Space - *Reconciling economic competitiveness with societal well-being and planetary boundaries*

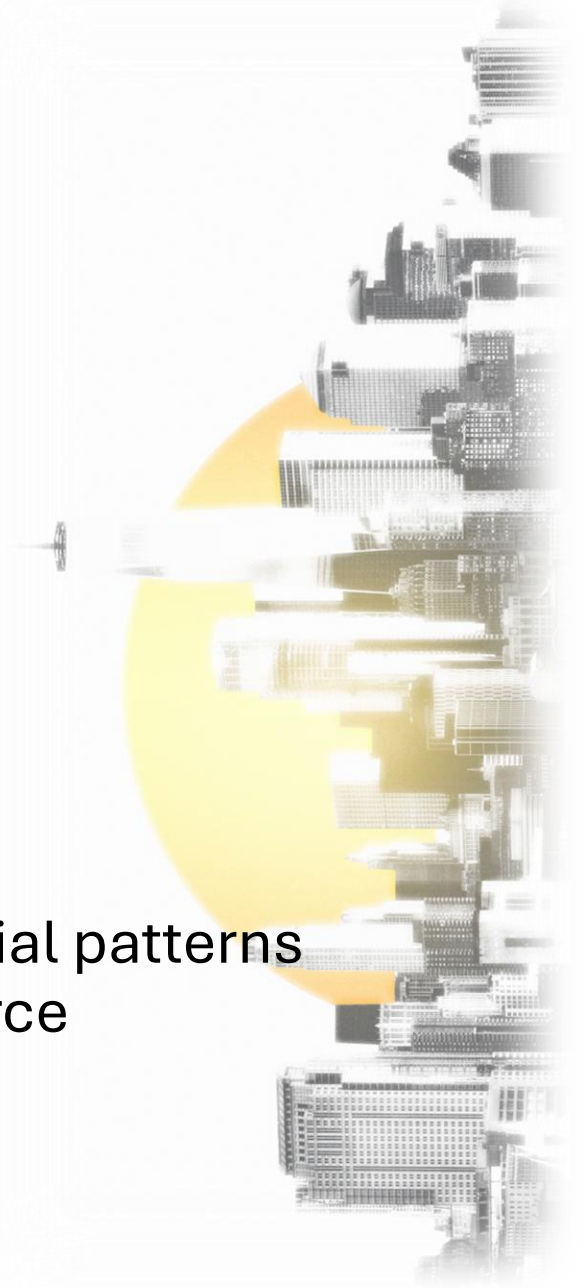
Scientific Symposium - Luxembourg - October 20th, 2026.
Organised by the Climate Policy Observatory (OPC)



Disclaimer

- Urban planner and geospatial scientist – not an economist!
- Very little knowledge about Luxembourg

- Background in architecture and urban planning
- Research focus: inequalities in urban space
- Work within the paradigm of urban science
- Use quantitative and geospatial techniques to understand spatial patterns and urban dynamics – how they produce, reproduce and reinforce inequalities
- Provide basis for planning and policies that help combat them



Urban Inequalities across Global South and North

- Brazilian researcher working in the UK – comparative perspective
- Cities of the Global North and South are rarely compared
- Distinct starting points
  - Global South cities have had difficult *initial conditions*, inequalities rooted in colonialism
  - High proportion of population with low-income
- Common problems / convergence of problems
  - Inequality
  - Affordable housing crisis
  - Sustainability
  - Climate change – with compounding effects
- *Are the nature of the processes that produce and reproduce urban space – and inequalities - that different?*

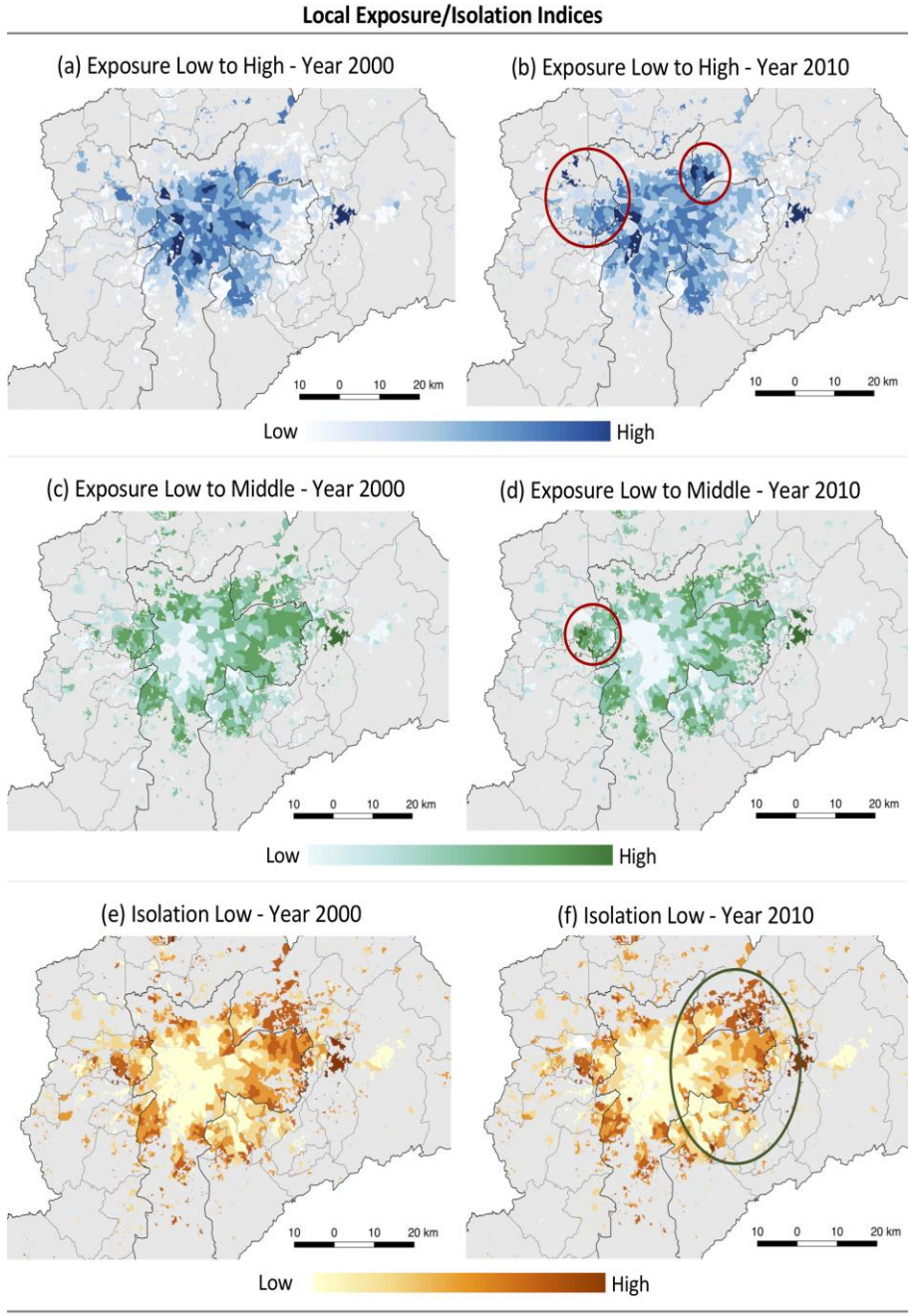


Segregation in São Paulo (2000-2010)

- Spatial pattern radial and concentric – higher income classes in the centre and low in the peripheral ring

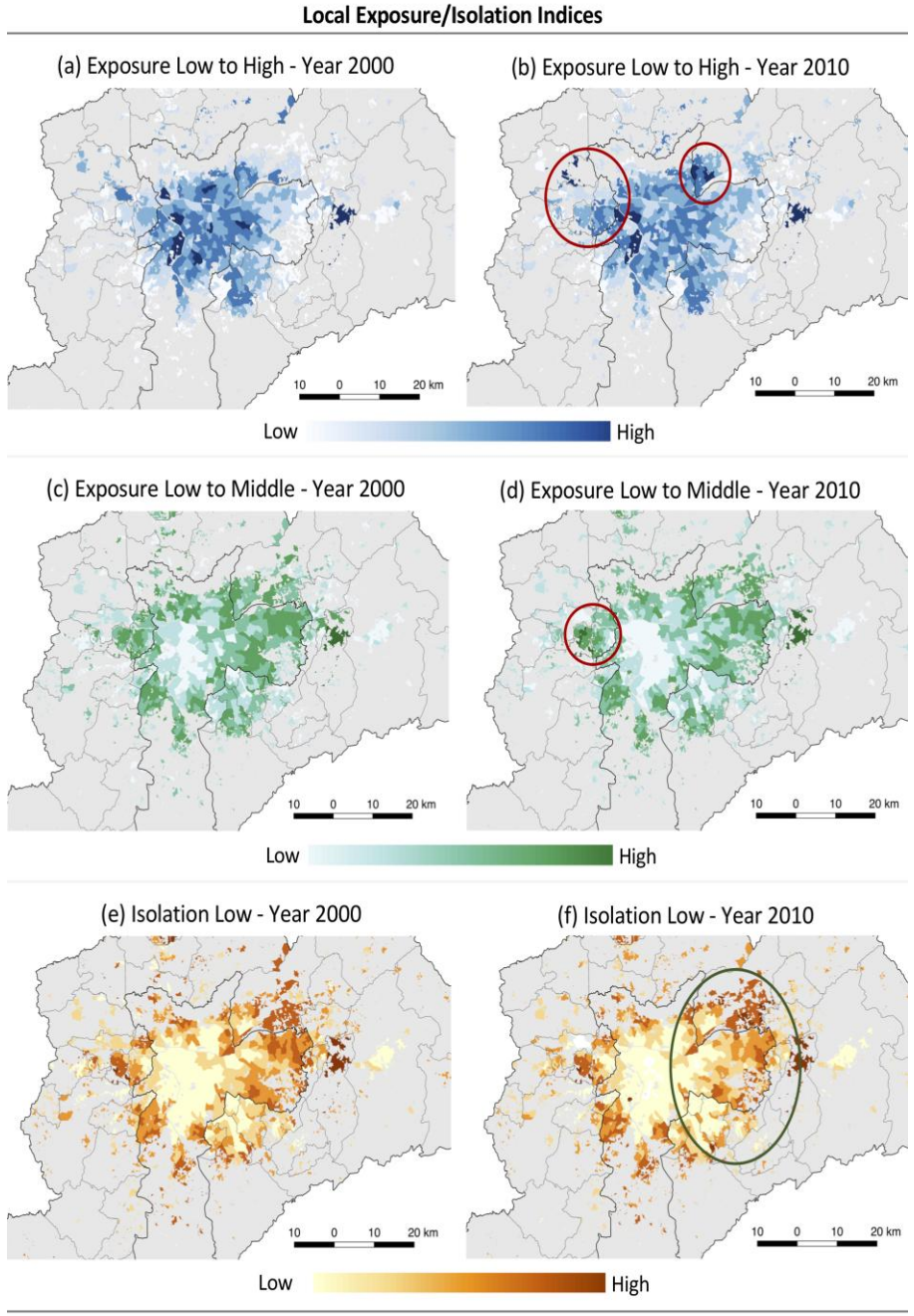
colonial pattern: main square with church and mayor's office surrounded by higher income groups, with lower income groups farther away

- Studies suggest a change to this pattern, due to changes in:
  - residential preferences of higher classes (gated communities) and
  - the economic situation of country (in the period) which has changed the nature of peripheral residential areas



Segregation in São Paulo (2000-2010)

- Increase in levels of segregation *despite economic growth*
- High income – most segregated. Low-income 4th
- Increase in fragmentation and heterogeneity of peripheral areas - mixture between close classes only (medium and low)
- Increased separation between high (central) and low classes (peripheral) increased
- Resilience of core-periphery spatial structure - with more heterogeneity in parts



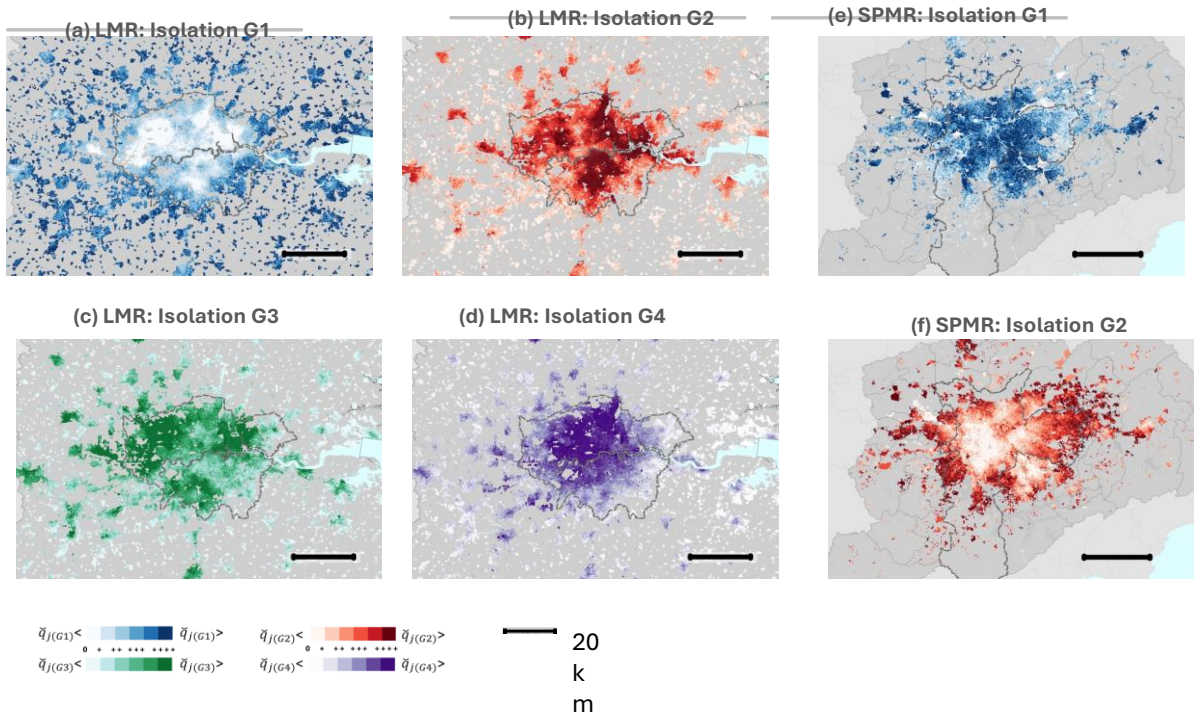
Urban Segregation – Global perspective

- High income often most segregated group – economic power to make choices, constraining others
- ‘Sorting mechanisms’ - competition for land, lifestyle, residential preferences, affordability – constraints as much as choices
- But also homophily, differences in beliefs (religion), race (racism?) and systemic inequalities
- Segregation often thought as one-dimensional (social dimensions) – guided by political agendas, research traditions, and often myths (!), but these sorting mechanisms do not operate in isolation and are often interrelated - complex
- Link between segregation and economic inequality known but changes to inequality do not immediately affect levels of segregation – time lag? independent processes?
- Spatial patterns and processes of segregation are very resilient – wicked problem
- Cities in countries with higher inequalities tend to display higher levels of segregation – *but is this always the case?*

Comparing Segregation ethno-racial

São Paulo vs Londo

- Ehtno-racial segregation: London more segregated than SP
- More diverse cities tend to be more ethnically segregated
- Inverse pattern of segregation:
  - Sao Paulo – core periphery (white groups in the centre)
  - London - more complex (minority groups in the centre)



- Sao Paulo's spatial pattern of segregation was **more punitive** to the minority groups than London's
- London minority groups had more access to opportunities.
- But for how long? London is getting too expensive and pushing those who cannot afford housing in the city outwards...

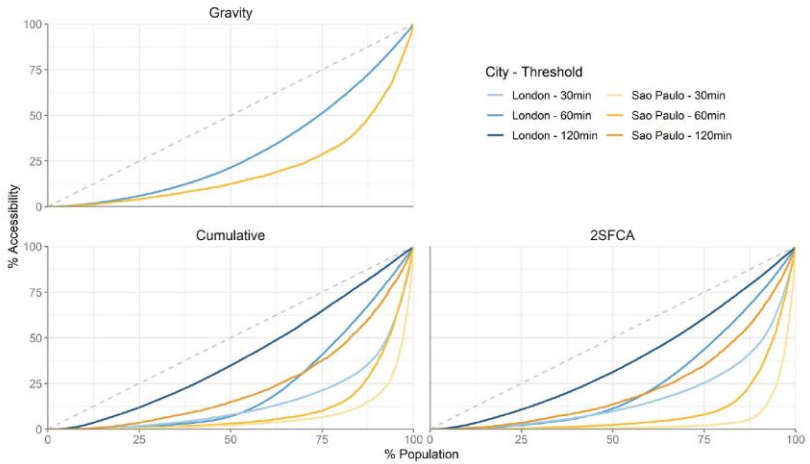
Comparing accessibility
São Paulo vs London

Table 3
Gini values for London and São Paulo accessibility dimension.

		GINI for all groups		GINI for G1 + G7	
Accessibility	**Threshold**	**London**	**São Paulo**	**London**	**São Paulo**
Gravity		0.37	0.63	0.32	0.6
Cumulative					
	30	0.7	0.87	0.68	0.86
	60	0.53	0.81	0.49	0.79
	120	0.23	0.56	0.17	0.53
2SFCA					
	30	0.65	0.91	0.67	0.91
	60	0.5	0.8	0.49	0.82
	120	0.25	0.54	0.15	0.54

Accessibility – ease of reach to opportunities (jobs, schools, etc)

SP – accessibility decreases as income lowers
London – more complex pattern



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Cities
Available online 20 November 2020, 103016
In Press, Corrected Proof

Inequalities in transit accessibility: Contributions from a comparative study between Global South and North metropolitan regions

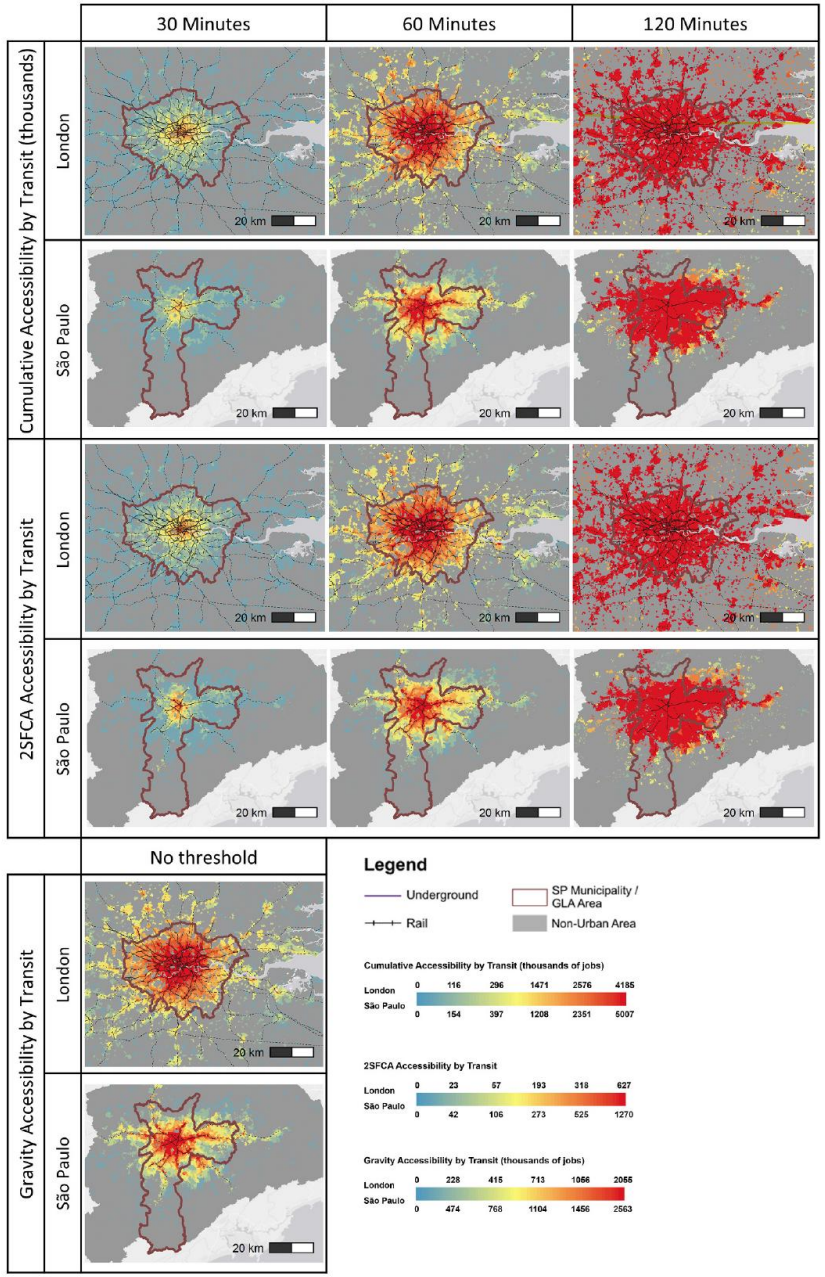
Mariana Giannotti [a, c], Joana Barros [b], Diego B. Tomasiello [a], Duncan Smith [c], Bruna Pizzol [a], Beatriz M. Santos [a], Chen Zhong [d], Yao Shen [c], Eduardo Marques [c], Michael Batty [c]

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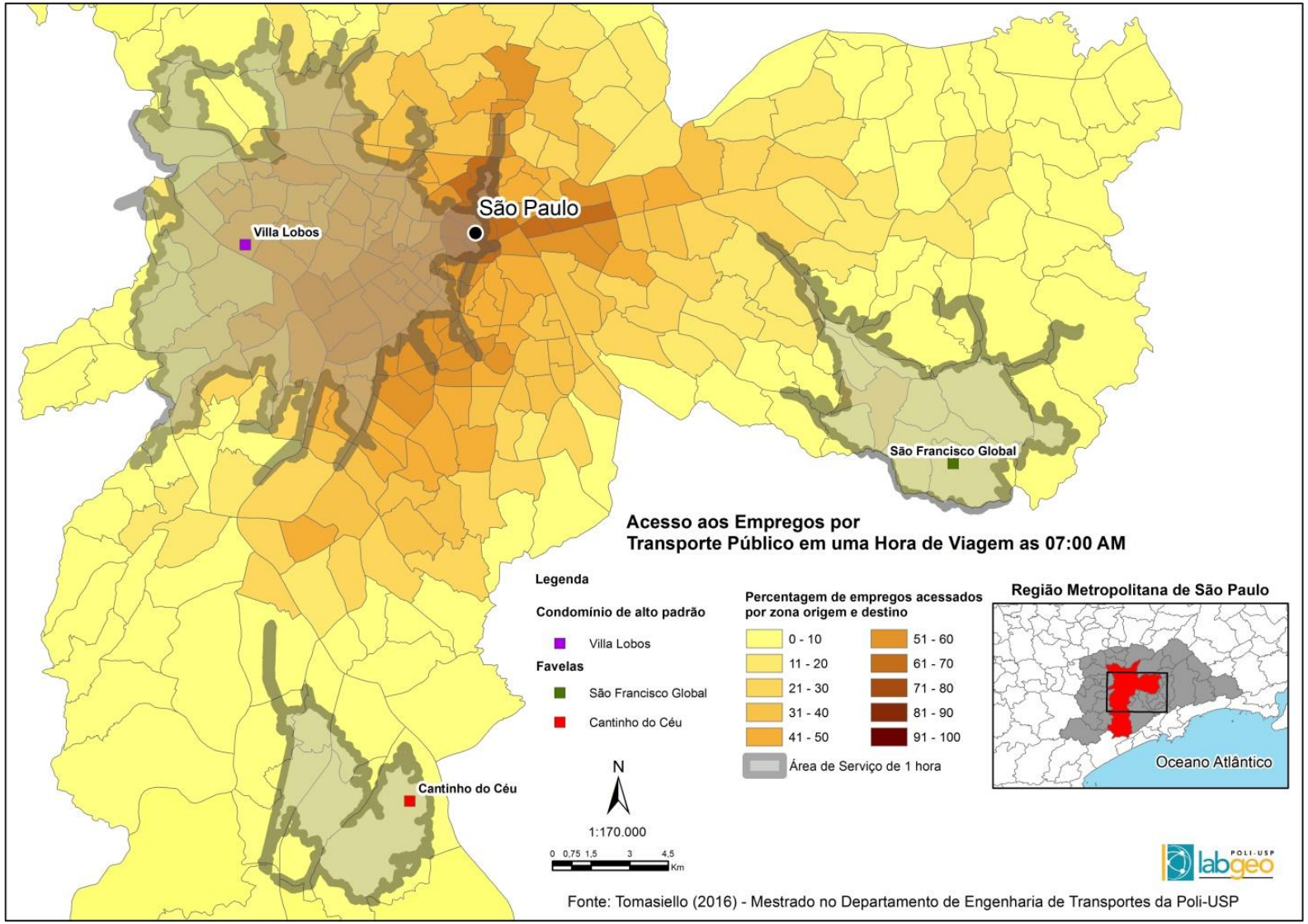
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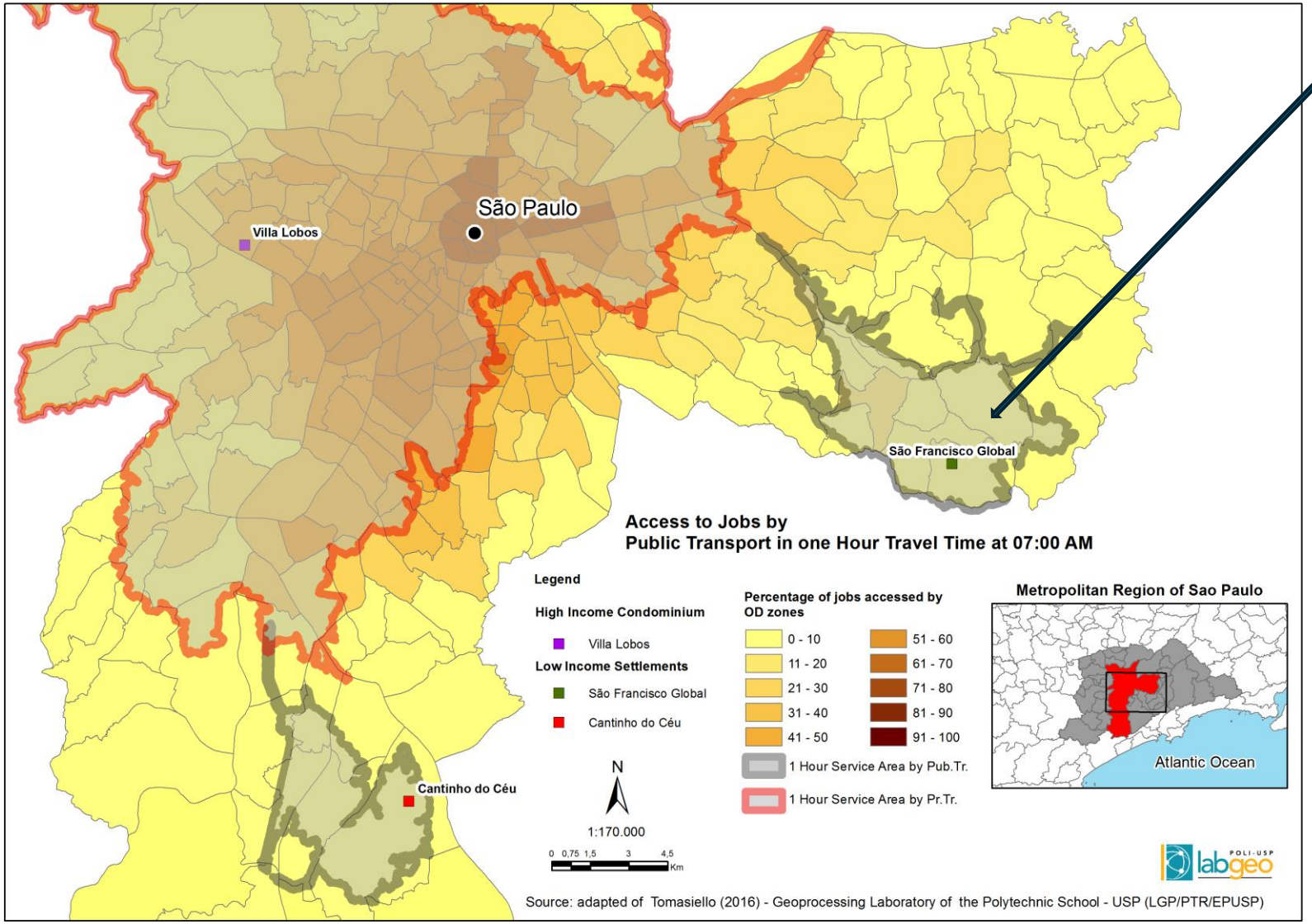


Accessibility to who?



Maps by LabGeo (Tomasiello & Giannotti), POLI-USP

Accessibility to who?



5am departure to get to work at 8 am

3-hour commute – one way

Maps by LabGeo (Tomasiello & Giannotti), POLI-USP

Accessibility in London

High accessibility groups

- Professionals who *want* and *can* afford to live centrally

Low accessibility groups

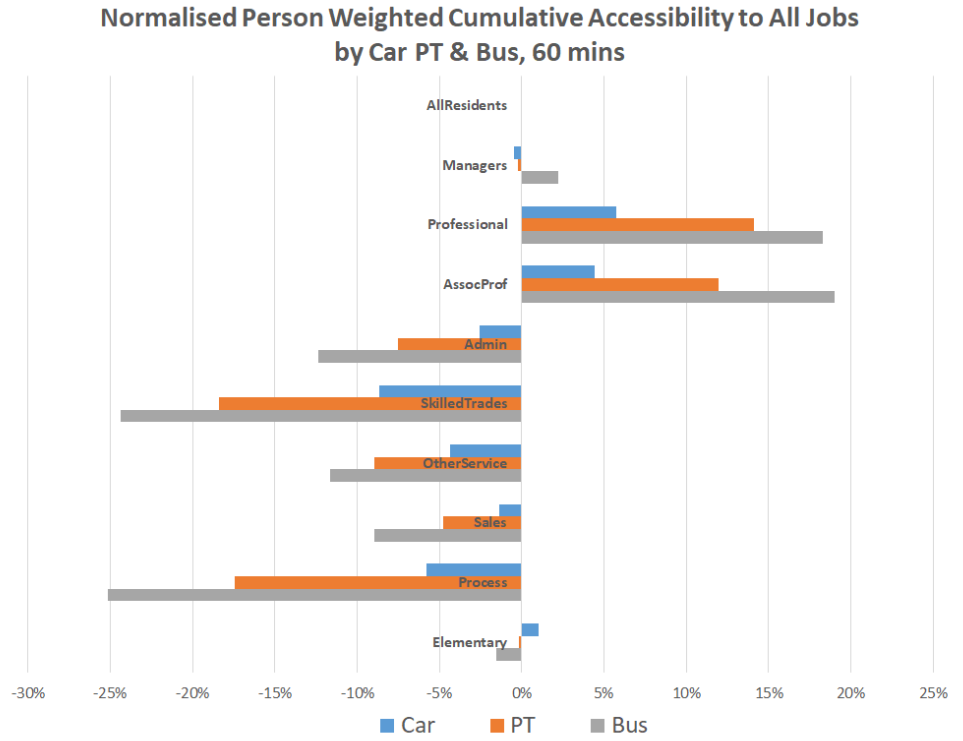
- Medium-low classes cannot afford central areas

Average accessibility groups

- Directors/managers – prefer suburban / rural areas – more green space, quality of life – lower accessibility, but they can afford the commute by train

- Elementary occupations (lowest-income) – accessibility close to average – effect old social housing policies which placed low-income people in central areas of London

CLEAR LEGACY OF SOCIAL HOUSING POLICIES





Urban Form and Accessibility

1st Edition

Social, Economic, and Environment Impacts

Write a review

Editors: Corinne Mulley, John D. Nelson

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Published Date: 1st December 2020

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Journal of Transport Geography

Volume 86, June 2020, 102767



A compact city for the wealthy? Employment accessibility inequalities between occupational classes in the London metropolitan region 2011

Duncan A. Smith [a], Yao Shen [b], Joana Barros [c], Chen Zhong [d], Mike Batty [a], Mariana Giannotti [e]

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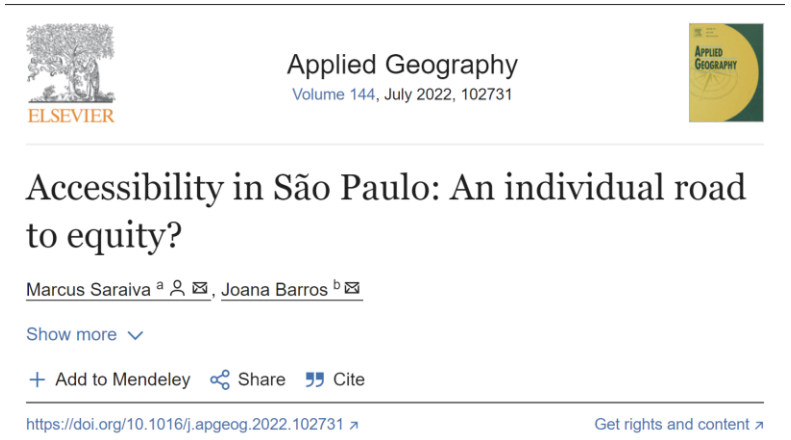
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An individual road to equity?

- Individual accessibility: insights into intra-group differences
- low-income groups, living in peripheral areas, found a way to compensate for their locational disadvantage by using motorbikes
- efficacy of individual strategies
- collective safety and sustainability costs


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Applied Geography
Volume 144, July 2022, 102731

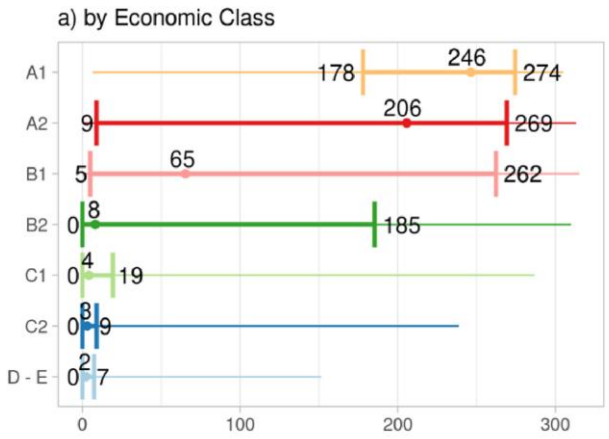
Accessibility in São Paulo: An individual road to equity?

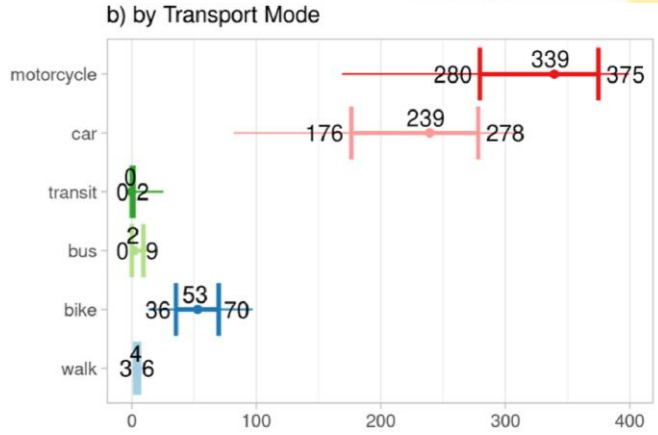
Marcus Saraiva [a], Joana Barros [b]

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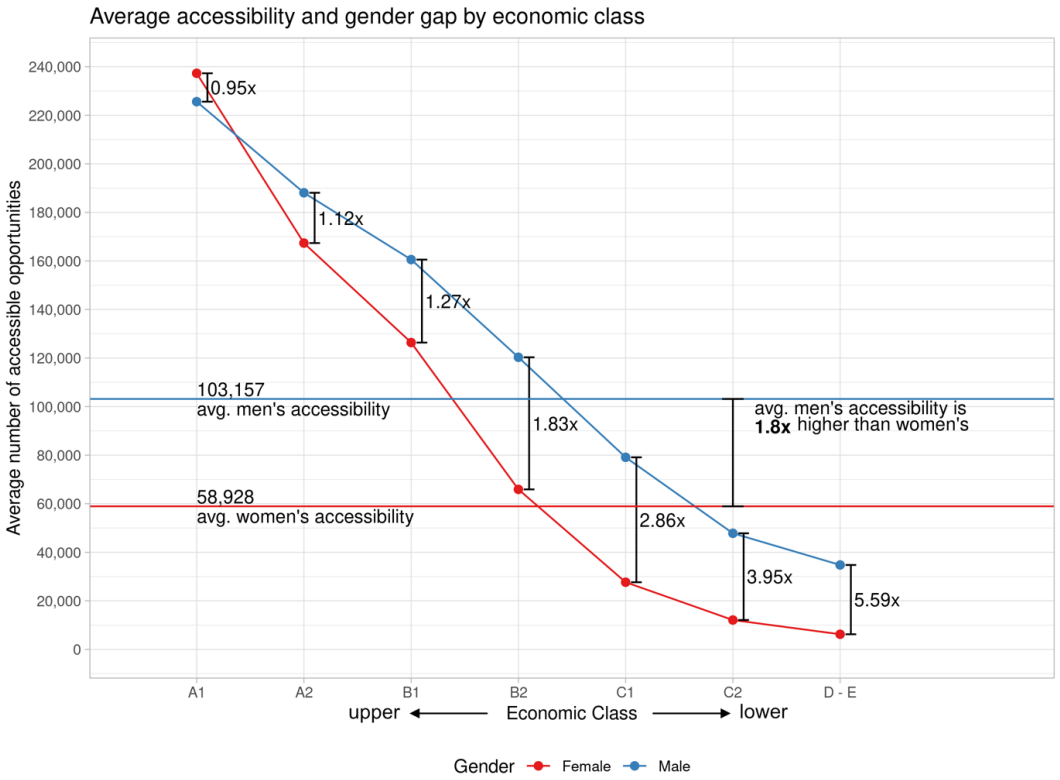
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Gendered urban inequalities



- Gender gap across economic classes
- Men’s average accessibility 1.8x higher than women’s
- Gap increases towards lower-income classes – up to 5.59x higher
- Intersectional inequality (gender and economic class)
- Mainly explained by modal split: women tend to walk and use public transport more than men

’less’ but more sustainable!

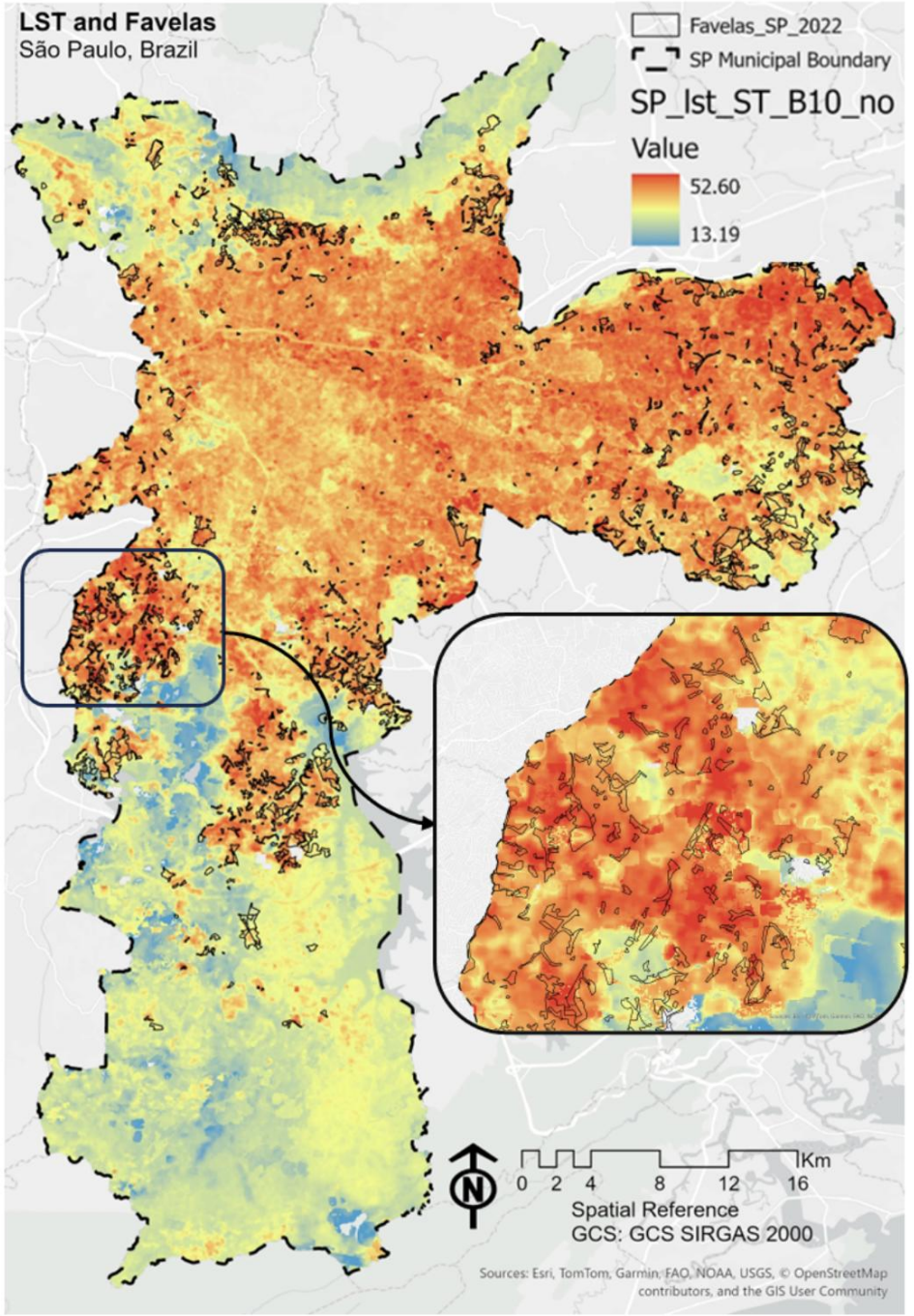
Heat Exposure

Invisible inequality

Adequate housing



Photo by Tuca Vieira, 2004



Juneja, R., da Fonseca Feitosa, F. & Fernandez Nascimento, V. Uneven heat exposure in Global South megacities: a comparative analysis of informal settlements in São Paulo and Delhi. *GeoJournal* 91, 165 (2026). https://doi.org/10.1007/s10708-026-11716-2

Heat Exposure

Invisible inequality

Adequate housing



Photo by Tuca Vieira in 2004

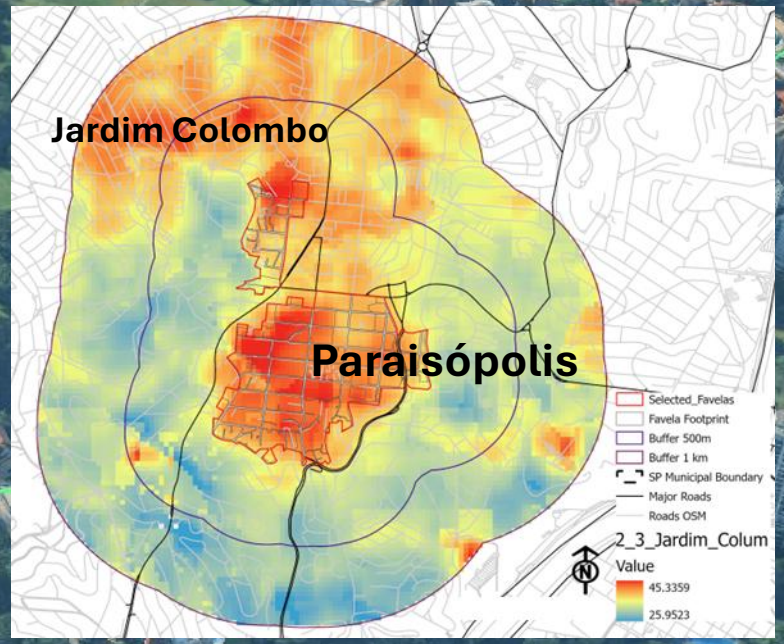


Photo by Johnny Miller in 2020

Paraisópolis –
Highest Temp 45ºC

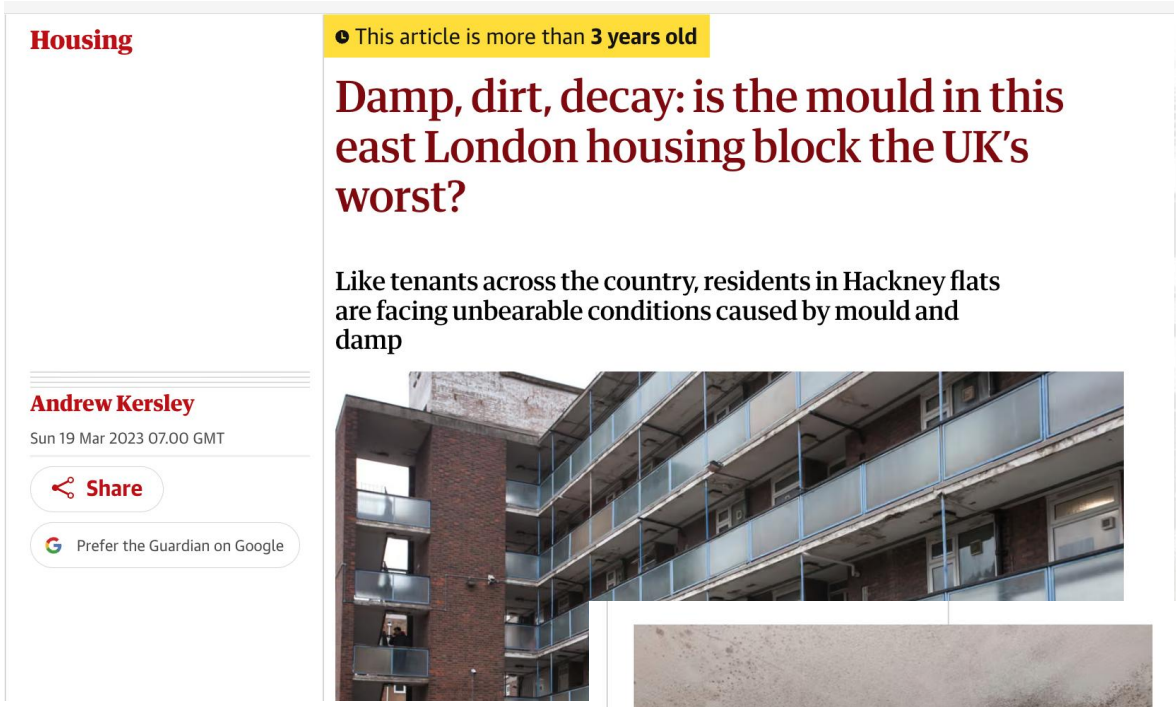
- vegetation
- built-up density
- urban morphology
- building materials

26ºC - 30ºC
surrounding areas





https://www.theguardian.com/money/2026/oct/14/energy-bills-roof-house-leaking-heat





Black mould and spores in a Mansfield Court flat. Photograph: Andrew Kersley/the Observer

https://www.theguardian.com/society/2023/mar/19/damp-dirt-decay-is-the-mould-in-this-east-london-housing-block-the-uks-worst

UK

- inequalities are less pronounced
- differences in housing stock quality – energy efficiency
- Housing tenures
- Social vulnerability
- energy costs

inequalities can be found at different scales

intra-urban inequalities need attention and effective policies

Gender and intersectional inequalities

- Still invisible – often intra households, intra groups, lack of data
- Housing and energy crises are happening to everyone, but it affects some more than others
- Energy costs: minority ethnic groups, disable, elderly, single mothers
- Peripheral location, long commutes
  - Impact on ability to work, work full-time
  - Childcare, household responsibilities
  - Women are more time-constrained than men
  - Women tend to use more public transport, walking



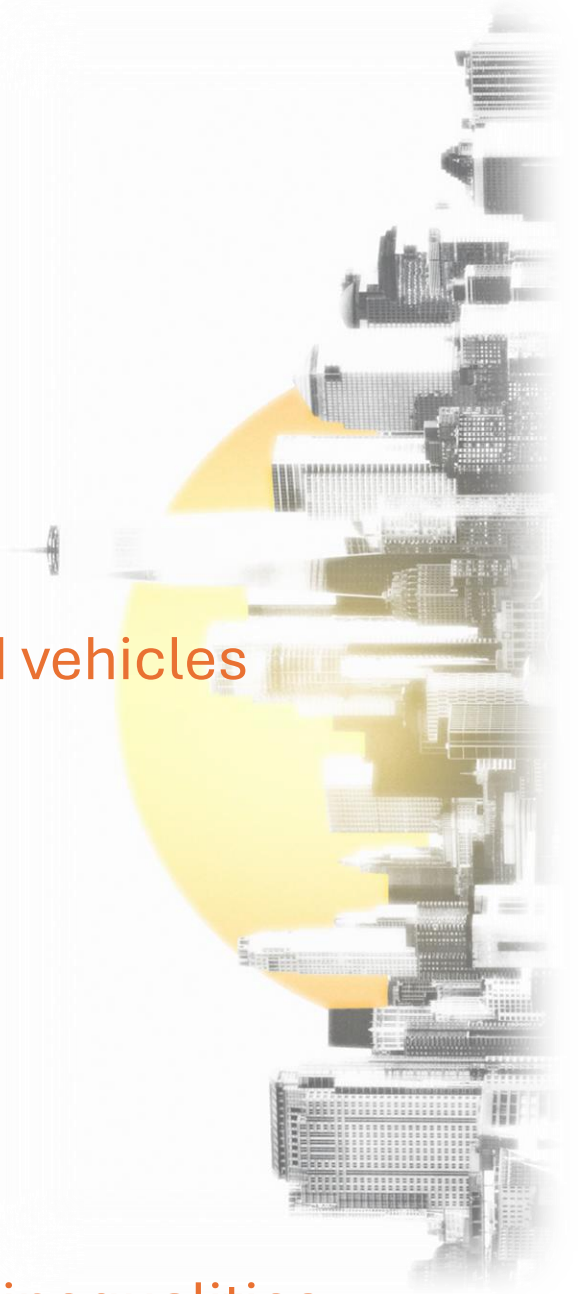
What does it have to do with Europe?

Housing crisis
Unaffordable central urban areas
Peripheral residential patterns

Long commutes
people overcome locational adversity using individual motorised vehicles
at a collective cost - sustainability

quality of housing
costs of energy
energy efficiency not affordable to lower income

Unequal distribution of burden
Low income, minority ethnic groups
Persistent (and still invisible) gender and intersectional inequalities

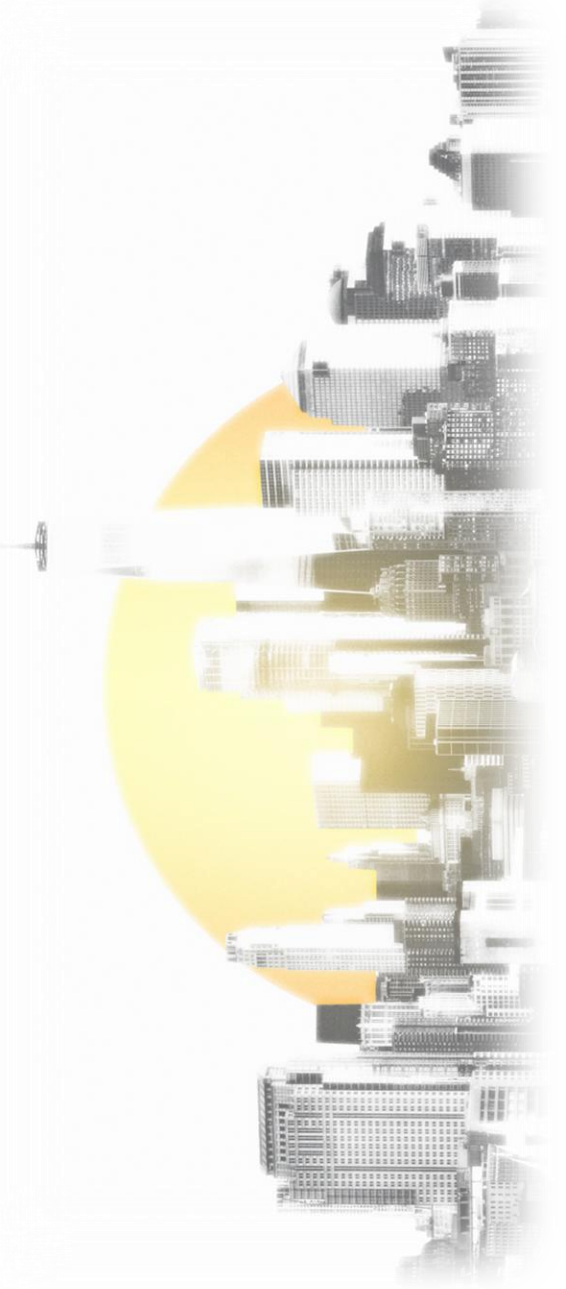


Urban Inequalities across Global South and North

- Cities of the Global North and South are rarely compared
- Distinct starting points
  - Global South cities have had difficult *initial conditions*, inequalities rooted in colonialism
  - High proportion of population with low-income
- Common problems / convergence of problems
  - Inequality
  - Affordable housing crisis
  - Sustainability
  - Climate change – with compounding effects

Context matters but….

Are the nature of the processes that produce and reproduce urban space – and inequalities - that different?



Thank you!

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